

## SEQUENCE LISTING



<110> Perrault, Claude  
McBride, Kevin

<120> MAMMALIAN SIMP, GENE SEQUENCE AND USES THEREOF IN CANCER THERAPY

<130> 5600-74

<140> US 10/028 384  
<141> 2001-12-20

<160> 320

<170> PatentIn version 3.1

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Trp	Leu	Ala	Gly	Phe	Ser	Ser	Arg	Leu	Phe	Ala	Val	Ile	Arg	Phe	Glu		
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agc	atc	atc	cac	gag	ttc	gac	ccg	tgg	ttt	aac	tat	aga	tca	aca	cat		336
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aac ata act gtt cac ata aga gac gta tgt gtg ttc ctt gca cca act Asn Ile Thr Val His Ile Arg Asp Val Cys Val Phe Leu Ala Pro Thr 165 170 175	528
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gca tca gtg tct gag cat caa cct acg act tgg gtg tct ttc ttc ttt Ala Ser Val Ser Glu His Gln Pro Thr Thr Trp Val Ser Phe Phe Phe	405		410	415	1248	
gat cta cat att ctt gta tgt acc ttc cca gca ggc ctt tgg ttc tgc Asp Leu His Ile Leu Val Cys Thr Phe Pro Ala Gly Leu Trp Phe Cys	420		425	430	1296	
atc aaa aat atc aac gat gaa aga gta ttt gtt gct cta tat gca atc Ile Lys Asn Ile Asn Asp Glu Arg Val Phe Val Ala Leu Tyr Ala Ile	435		440	445	1344	
agt gct gtc tac ttt gct gga gtg atg gtg cga ctg atg ttg act ttg Ser Ala Val Tyr Phe Ala Gly Val Met Val Arg Leu Met Leu Thr Leu	450		455	460	1392	
act cca gtc gtg tgt atg ctg tct gca att gcc ttt tca aat gtt ttt Thr Pro Val Val Cys Met Leu Ser Ala Ile Ala Phe Ser Asn Val Phe	465		470	475	1440	
gag cac tat ttg ggg gat gac atg aaa agg gaa aat cca cct gtg gag Glu His Tyr Leu Gly Asp Asp Met Lys Arg Glu Asn Pro Pro Val Glu	485		490	495	1488	
gac agc agt gat gag gat gac aaa aga aac caa gga aat ttg tat gat Asp Ser Ser Asp Glu Asp Asp Lys Arg Asn Gln Gly Asn Leu Tyr Asp	500		505	510	1536	
aag gca ggt aaa gtg agg aaa cat gca act gaa cag gaa aaa act gaa Lys Ala Gly Lys Val Arg Lys His Ala Thr Glu Gln Glu Lys Thr Glu	515		520	525	1584	
gag gga tta ggc cct aat ata aaa agc att gtc acc atg ttg atg ctg Glu Gly Leu Gly Pro Asn Ile Lys Ser Ile Val Thr Met Leu Met Leu	530		535	540	1632	
atg cta ttg atg atg ttt gct gtc cac tgt acc tgg gtc aca agc aat Met Leu Leu Met Met Phe Ala Val His Cys Thr Trp Val Thr Ser Asn	545		550	555	560	1680
gcc tac tct agt cca agt gta gtc ctg gcc tca tac aat cat gat ggc Ala Tyr Ser Ser Pro Ser Val Val Leu Ala Ser Tyr Asn His Asp Gly	565		570	575		1728
acc agg aat atc tta gat gat ttt aga gaa gct tac ttt tgg cta agg Thr Arg Asn Ile Leu Asp Asp Phe Arg Glu Ala Tyr Phe Trp Leu Arg	580		585	590		1776
caa aat aca gat gaa cat gca cga gta atg tct tgg tgg gat tat ggc Gln Asn Thr Asp Glu His Ala Arg Val Met Ser Trp Trp Asp Tyr Gly	595		600	605		1824
tat cag ata gct gga atg gct aat aga act acg ttg gtg gat aat aac Tyr Gln Ile Ala Gly Met Ala Asn Arg Thr Thr Leu Val Asp Asn Asn	610		615	620		1872
acc tgg aat aac agc cac ata gca ctg gtg gga aaa gct atg tct tct						1920

Thr Trp Asn Asn Ser His Ile Ala Leu Val Gly Lys Ala Met Ser Ser			
625	630	635	640
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Ser Tyr Tyr Arg Phe Gly Glu Met Gln Leu Asp Phe Arg Thr Pro Pro			
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Gly Phe Asp Arg Thr Arg Asn Ala Glu Ile Gly Asn Lys Asp Ile Lys			
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ttc aaa cat ttg gaa gaa gcc ttt aca tca gaa cac tgg ctt gtt agg			2304
Phe Lys His Leu Glu Glu Ala Phe Thr Ser Glu His Trp Leu Val Arg			
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ata tat aaa gta aaa gca cct gat aac agg gag aca tta gat cac aaa			2352
Ile Tyr Lys Val Lys Ala Pro Asp Asn Arg Glu Thr Leu Asp His Lys			
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Thr Thr Lys Arg Lys Arg Gly Tyr Ile Lys Asn Lys Leu Val Phe Lys			
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Ala Pro Pro Lys Pro Ala Pro Ala Gly Leu Ser Gly Gly Leu Ser Gln  
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Pro Ala Gly Trp Gln Ser Leu Leu Ser Phe Thr Ile Leu Phe Leu Ala  
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Trp Leu Ala Gly Phe Ser Ser Arg Leu Phe Ala Val Ile Arg Phe Glu  
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Ser Ile Ile His Glu Phe Asp Pro Trp Phe Asn Tyr Arg Ser Thr His  
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His Leu Ala Ser His Gly Phe Tyr Glu Phe Leu Asn Trp Phe Asp Glu  
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Arg Ala Trp Tyr Pro Leu Gly Arg Ile Val Gly Gly Thr Val Tyr Pro  
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Gly Leu Met Ile Thr Ala Gly Leu Ile His Trp Ile Leu Asn Thr Leu  
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Asn Ile Thr Val His Ile Arg Asp Val Cys Val Phe Leu Ala Pro Thr  
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Phe Ser Gly Leu Thr Ser Ile Ser Thr Phe Leu Leu Thr Arg Glu Leu  
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Pro Gly Tyr Ile Ser Arg Ser Val Ala Gly Ser Phe Asp Asn Glu Gly  
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Ile Ala Ile Phe Ala Leu Gln Phe Thr Tyr Tyr Leu Trp Val Lys Ser  
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Val Lys Thr Gly Ser Val Phe Trp Thr Met Cys Cys Cys Leu Ser Tyr  
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Ile Pro Leu His Val Phe Val Leu Leu Leu Met Gln Arg Tyr Ser Lys  
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Arg Val Tyr Ile Ala Tyr Ser Thr Phe Tyr Ile Val Gly Leu Ile Leu  
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Ser Met Gln Ile Pro Phe Val Gly Phe Gln Pro Ile Arg Thr Ser Glu  
305 310 315 320

His Met Ala Ala Ala Gly Val Phe Ala Leu Leu Gln Ala Tyr Ala Phe  
325 330 335

Leu Gln Tyr Leu Arg Asp Arg Leu Thr Lys Gln Glu Phe Gln Thr Leu  
340 345 350

Phe Phe Leu Gly Val Ser Leu Ala Ala Gly Ala Val Phe Leu Ser Val  
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Ile Tyr Leu Thr Tyr Thr Gly Tyr Ile Ala Pro Trp Ser Gly Arg Phe  
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Tyr Ser Leu Trp Asp Thr Gly Tyr Ala Lys Ile His Ile Pro Ile Ile  
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Ala Ser Val Ser Glu His Gln Pro Thr Thr Trp Val Ser Phe Phe Phe  
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Asp Leu His Ile Leu Val Cys Thr Phe Pro Ala Gly Leu Trp Phe Cys  
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Ile Lys Asn Ile Asn Asp Glu Arg Val Phe Val Ala Leu Tyr Ala Ile  
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Tyr Gln Ile Ala Gly Met Ala Asn Arg Thr Thr Leu Val Asp Asn Asn  
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Asn Glu Thr Ala Ala Tyr Lys Ile Met Arg Thr Leu Asp Val Asp Tyr  
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Asn Lys Phe Leu Trp Met Val Arg Ile Ala Glu Gly Glu His Pro Lys  
675 680 685

Asp Ile Arg Glu Ser Asp Tyr Phe Thr Pro Gln Gly Glu Phe Arg Val  
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Asp Lys Ala Gly Ser Pro Thr Leu Leu Asn Cys Leu Met Tyr Lys Met  
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Ser Tyr Tyr Arg Phe Gly Glu Met Gln Leu Asp Phe Arg Thr Pro Pro  
725 730 735

Gly Phe Asp Arg Thr Arg Asn Ala Glu Ile Gly Asn Lys Asp Ile Lys

740

745

750

Phe Lys His Leu Glu Glu Ala Phe Thr Ser Glu His Trp Leu Val Arg  
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&lt;213&gt; Mus musculus

&lt;300&gt;

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&lt;309&gt; 2001-07-05

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Ile	Thr	Ala	Gly	Leu	Ile	His	Trp	Ile	Leu	Asn	Thr	Leu	Asn	Ile	Thr
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Val	His	Ile	Arg	Asp	Val	Cys	Val	Phe	Leu	Ala	Pro	Thr	Phe	Ser	Gly
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Gly Ala Gly Leu Leu Ala Ala Cys Phe Ile Ala Ile Val Pro Gly Tyr  
195 200 205

Ile Ser Arg Ser Val Ala Gly Ser Phe Asp Asn Glu Gly Ile Ala Ile  
210 215 220

Phe Ala Leu Gln Phe Thr Tyr Tyr Leu Trp Val Lys Ser Val Lys Thr  
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His Val Phe Val Leu Leu Leu Met Gln Arg Tyr Ser Lys Arg Val Tyr  
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Ile Ala Tyr Ser Thr Leu Tyr Ile Val Gly Leu Ile Leu Ser Met Gln  
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Ala Ala Tyr Lys Ile Met Arg Ser Leu Asp Val Asp Tyr Val Leu Val  
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Glu Gly Asp Tyr Phe Thr Gln Gln Gly Glu Phe Arg Val Asp Lys Ala  
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Gly Ser Pro Thr Leu Leu Asn Cys Leu Met Tyr Lys Met Ser Tyr Tyr  
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725 730 735

Arg Thr Arg Asn Ala Glu Ile Gly Asn Lys Asp Ile Lys Phe Lys His  
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755 760 765

Val Lys Ala Pro Asp Asn Arg Glu Thr Leu Gly His Lys Pro Arg Val  
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Thr Asn Ile Val Pro Lys Gln Lys Tyr Leu Ser Lys Lys Thr Thr Lys  
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Tyr Ala Lys Ile His Ile Pro Ile Ile Ala Ser Val Ser Glu His Gln

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Ile Ser Glu Gly Ile Trp Pro Glu Glu Ile Lys Glu Arg Tyr Phe Tyr  
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Arg Asn Ser Leu Leu Tyr Lys Met Ser Tyr Lys Asp Phe Pro Gln Leu  
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Phe Asn Gly Gly Gln Ala Thr Asp Arg Val Arg Gln Gln Met Ile Thr  
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Phe Val Leu Leu Ile Met Gly Arg Tyr Ser Pro Arg Leu Leu Thr Ser  
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Tyr Ser Thr Phe Tyr Ile Leu Gly Leu Leu Phe Ser Met Gln Ile Pro  
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Thr Gly Tyr Ala Lys Ile His Ile Pro Ile Ile Ala Ser Val Ser Glu  
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Val Cys Ala Phe Pro Val Gly Val Trp Tyr Cys Ile Lys Gln Ile Asn  
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Asp Glu Arg Val Phe Val Val Leu Tyr Ala Ile Ser Ala Val Tyr Phe  
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Ala Gly Lys Leu Lys His Arg Thr Lys His Asp Ala Gln Gln Asp Thr  
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Gly Val Ser Ser Asn Leu Lys Ser Ile Val Ile Leu Ala Val Leu Met  
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Asn Lys Phe Leu Trp Met Val Arg Ile Ala Glu Gly Glu His Pro Lys  
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Asp Ala Glu Gly Ala Pro Ala Leu Leu Asn Cys Leu Met Tyr Lys Leu

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Ile Tyr Arg Val Lys Lys Pro His Glu Phe Asn Arg Pro Ser Leu Lys  
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 35 40 45

Asp Pro Tyr Phe Asn Tyr Arg Thr Thr Arg Phe Leu Ala Glu Glu Gly  
 50 55 60

Phe Tyr Lys Phe His Asn Trp Phe Asp Asp Arg Ala Trp Tyr Pro Leu  
 65 70 75 80

Gly Arg Ile Ile Gly Gly Thr Ile Tyr Pro Gly Leu Met Ile Thr Ser  
 85 90 95

Ala Ala Ile Tyr His Val Leu His Phe Phe His Ile Thr Ile Asp Ile  
100 105 110

Arg Asn Val Cys Val Phe Leu Ala Pro Leu Phe Ser Ser Phe Thr Thr  
115 120 125

Ile Val Thr Tyr His Leu Thr Lys Glu Leu Lys Asp Ala Gly Ala Gly  
130 135 140

Leu Leu Ala Ala Ala Met Ile Ala Val Val Pro Gly Tyr Ile Ser Arg  
145 150 155 160

Ser Val Ala Gly Ser Tyr Asp Asn Glu Gly Ile Ala Ile Phe Cys Met  
165 170 175

Leu Leu Thr Tyr Tyr Met Trp Ile Lys Ala Val Lys Thr Gly Ser Ile  
180 185 190

Tyr Trp Ala Ala Lys Cys Ala Leu Ala Tyr Phe Tyr Met Val Ser Ser  
195 200 205

Trp Gly Gly Tyr Val Phe Leu Ile Asn Leu Ile Pro Leu His Val Leu  
210 215 220

Val Leu Met Leu Thr Gly Arg Phe Ser His Arg Ile Tyr Val Ala Tyr  
225 230 235 240

Cys Thr Val Tyr Cys Leu Gly Thr Ile Leu Ser Met Gln Ile Ser Phe  
245 250 255

Val Gly Phe Gln Pro Val Leu Ser Ser Glu His Met Ala Ala Phe Gly  
260 265 270

Val Phe Gly Leu Cys Gln Ile His Ala Phe Val Asp Tyr Leu Arg Ser  
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Lys Leu Asn Pro Gln Gln Phe Glu Val Leu Phe Arg Ser Val Ile Ser  
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Leu Val Gly Phe Val Leu Leu Thr Val Gly Ala Leu Leu Met Leu Thr  
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Gly Lys Ile Ser Pro Trp Thr Gly Arg Phe Tyr Ser Leu Leu Asp Pro  
325 330 335

Ser Tyr Ala Lys Asn Asn Ile Pro Ile Ile Ala Ser Val Ser Glu His  
340 345 350

Gln Pro Thr Thr Trp Ser Ser Tyr Tyr Phe Asp Leu Gln Leu Leu Val  
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Phe Met Phe Pro Val Gly Leu Tyr Tyr Cys Phe Ser Asn Leu Ser Asp  
370 375 380

Ala Arg Ile Phe Ile Ile Met Tyr Gly Val Thr Ser Met Tyr Phe Ser  
385 390 395 400

Ala Val Met Val Arg Leu Met Leu Val Leu Ala Pro Val Met Cys Ile  
405 410 415

Leu Ser Gly Ile Gly Val Ser Gln Val Leu Ser Thr Tyr Met Lys Asn  
420 425 430

Leu Asp Ile Ser Arg Pro Asp Lys Lys Ser Lys Lys Gln Gln Asp Ser  
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Thr Tyr Pro Ile Lys Asn Glu Val Ala Ser Gly Met Ile Leu Val Met  
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Ala Phe Phe Leu Ile Thr Tyr Thr Phe His Ser Thr Trp Val Thr Ser  
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Glu Ala Tyr Ser Ser Pro Ser Ile Val Leu Ser Ala Arg Gly Gly Asp  
485 490 495

Gly Ser Arg Ile Ile Phe Asp Asp Phe Arg Glu Ala Tyr Tyr Trp Leu  
500 505 510

Arg His Asn Thr Pro Glu Asp Ala Lys Val Met Ser Trp Trp Asp Tyr  
515 520 525

Gly Tyr Gln Ile Thr Ala Met Ala Asn Arg Thr Ile Leu Val Asp Asn  
530 535 540

Asn Thr Trp Asn Asn Thr His Ile Ser Arg Val Gly Gln Ala Met Ala  
545 550 555 560

Ser Thr Glu Glu Lys Ala Tyr Glu Ile Met Arg Glu Leu Asp Val Ser  
565 570 575

Tyr Val Leu Val Ile Phe Gly Gly Leu Thr Gly Tyr Ser Ser Asp Asp  
580 585 590

Ile Asn Lys Phe Leu Trp Met Val Arg Ile Gly Gly Ser Thr Glu Thr  
595 600 605

Gly Arg His Ile Lys Glu Asn Asp Tyr Tyr Thr Pro Thr Gly Glu Phe  
610 615 620

Arg Val Asp Arg Glu Gly Ser Pro Val Leu Leu Asn Cys Leu Met Tyr  
625 630 635 640

Lys Met Cys Tyr Tyr Arg Phe Gly Gln Val Tyr Thr Glu Ala Lys Arg  
645 650 655

Pro Pro Gly Phe Asp Arg Val Arg Asn Ala Glu Ile Gly Asn Lys Asp  
660 665 670

Phe Glu Leu Asp Val Leu Glu Ala Tyr Thr Glu His Trp Leu  
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Thr  
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Thr Arg Leu Phe Ala Val Leu Arg Phe Glu Ser Val Ile His Glu Phe  
35 40 45

Asp Pro Tyr Phe Asn Tyr Arg Thr Thr Arg Phe Leu Ala Glu Glu Gly  
50 55 60

Phe Tyr Lys Phe His Asn Trp Phe Asp Asp Arg Ala Trp Tyr Pro Leu  
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Gly Arg Ile Ile Gly Gly Thr Ile Tyr Pro Gly Leu Met Ile Thr Ser  
85 90 95

Ala Ala Ile Tyr His Val Leu His Phe Phe His Ile Thr Ile Asp Ile  
100 105 110

Arg Asn Val Cys Val Phe Leu Ala Pro Leu Phe Ser Ser Phe Thr Ser  
115 120 125

Ile Val Thr Tyr Leu Leu Thr Lys Glu Leu Lys Asp Ala Gly Ala Gly  
130 135 140

Leu Leu Ala Ala Ala Met Ile Ala Val Val Pro Gly Tyr Ile Ser Arg  
145 150 155 160

Ser Val Ala Gly Ser Tyr Asp Asn Glu Gly Ile Ala Ile Phe Cys Met  
165 170 175

Leu Leu Thr Tyr Tyr Met Trp Ile Lys Ala Val Lys Thr Gly Ser Ile  
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Cys Trp Ala Ala Lys Cys Ala Leu Ala Tyr Phe Tyr Met Val Ser Ser  
195 200 205

Trp Gly Gly Tyr Val Phe Leu Ile Asn Leu Ile Pro Leu His Val Leu  
210 215 220

Val Leu Met Leu Thr Gly Arg Phe Ser His Arg Ile Tyr Val Ala Tyr  
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Cys Thr Val Tyr Cys Leu Gly Thr Ile Leu Ser Arg Gln Ile Ser Phe  
245 250 255

Val Gly Phe Gln Pro Val Leu Ser Ser Glu His Met Ala Gly Phe Gly  
260 265 270

Val Phe Gly Leu Cys Gln Ile His Ala Phe Val Asp Tyr Leu Arg Ser  
275 280 285

Lys Leu Asn Pro Gln Gln Phe Glu Val Leu Phe Arg Ser Val Ile Ser  
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Leu Val Gly Phe Val Leu Leu Thr Val Gly Ala Leu Leu Met Leu Thr  
305 310 315 320

Gly Lys Ile Ser Pro Trp Thr Gly Arg Phe Tyr Ser Leu Leu Asp Pro  
325 330 335

Ser Tyr Ala Lys Asn Asn Ile Pro Ile Ile Ala Ser Val Ser Glu His  
340 345 350

Gln Pro Thr Thr Trp Ser Ser Tyr Tyr Phe Asp Leu Gln Leu Leu Val  
355 360 365

Phe Met Phe Pro Val Gly Leu Tyr Tyr Cys Phe Ser Asn Leu Ser Asp  
370 375 380

Ala Arg Ile Phe Ile Ile Met Tyr Gly Val Thr Ser Met Tyr Phe Ser  
385 390 395 400

Ala Val Met Val Arg Leu Met Leu Val Leu Ala Pro Val Met Ser Ile  
405 . . . . . 410 . . . . . 415

Leu Ser Gly Ile Gly Val Ser Gln Val Leu Ser Thr Tyr Met Lys Asn  
420 . . . . . 425 . . . . . 430

Leu Asp Ile Ser Arg Pro Asp Lys Lys Ser Lys Lys Gln Gln Asp Ser  
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Thr Tyr Pro Ile Lys Ile Glu Val Ala Ser Gly Met Ile Leu Val Met  
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Ala Phe Phe Leu Ile Thr Tyr Thr Phe His Ser Thr Trp Val Thr Ser  
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Glu Ala Tyr Ser Ser Pro Ser Ile Val Leu Ser Ala Arg Gly Gly Asp  
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Gly Ser Arg Ile Ile Phe Asp Asp Phe Arg Glu Ala Tyr Tyr Trp Leu  
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Arg His Asn Thr Pro Glu Asp Ala Lys Val Met Ser Trp Trp Asp Tyr  
515 . . . . . 520 . . . . . 525

Gly Tyr Gln Ile Thr Ala Met Ala Asn Arg Thr Ile Leu Val Asp Asn  
530 . . . . . 535 . . . . . 540

Asn Thr Trp Asn Asn Thr His Ile Ser Arg Val Gly Gln Ala Met Ala  
545 . . . . . 550 . . . . . 555 . . . . . 560

Ser Thr Glu Glu Lys Ala Tyr Glu Ile Met Arg Glu Leu Asp Val Ser  
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Tyr Val Leu Val Ile Phe Gly Gly Leu Thr Gly Tyr Ser Ser Asp Asp  
580 . . . . . 585 . . . . . 590

Ile Asn Lys Phe Leu Trp Met Val Arg Ile Gly Gly Ser Thr Asp Thr  
595 . . . . . 600 . . . . . 605

Gly Lys His Ile Lys Glu Asn Asp Tyr Tyr Thr Pro Thr Gly Glu Phe  
610 . . . . . 615 . . . . . 620

Arg Val Asp Arg Glu Gly Ser Pro Val Leu Leu Asn Cys Leu Met Tyr  
625 . . . . . 630 . . . . . 635 . . . . . 640

Lys Met Cys Tyr Tyr Arg Phe Gly Gln Val Tyr Thr Glu Ala Lys Arg

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650

655

Pro Pro Gly Phe Asp Arg Val Arg Asn Ala Glu Ile Gly Asn Lys Asp  
660 665 670

Phe Glu Leu Asp Val Leu Glu Glu Gly Tyr Thr Thr Glu His Trp Leu  
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35 40 45

Glu Phe Asp Pro Trp Phe Asn Tyr Arg Ala Thr His His Met Val Gln  
50 55 60

His Gly Phe Tyr Lys Phe Leu Asn Trp Phe Asp Glu Arg Ala Trp Tyr  
65 70 75 80

Pro Leu Gly Arg Ile Val Gly Gly Thr Val Tyr Pro Gly Leu Met Val  
85 90 95

Thr Ser Gly Leu Ile His Trp Ile Leu Asp Ser Leu Asn Phe His Val  
100 105 110

His Ile Arg Glu Val Cys Val Phe Leu Ala Pro Thr Phe Ser Gly Leu

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120

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Thr Ala Ile Ala Thr Tyr Leu Leu Thr Lys Glu Leu Trp Ser Pro Gly  
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Ala Gly Leu Phe Ala Ala Cys Phe Ile Ala Ile Ser Pro Gly Tyr Thr  
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Ser Arg Ser Val Ala Gly Ser Tyr Asp Asn Glu Gly Ile Ala Ile Phe  
 165 170 175

Ala Leu Gln Phe Thr Tyr Tyr Leu Trp Val Lys Ser Leu Lys Thr Gly  
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Ser Ile Met Trp Ala Ser Leu Cys Ala Leu Ser Tyr Phe Tyr Met Val  
 195 200 205

Ser Ala Trp Gly Gly Tyr Val Phe Ile Ile Asn Leu Ile Pro Leu His  
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Ala Leu Ala Leu Ile Ile Met Gly Arg Tyr Ser Ser Arg Leu Phe Val  
 225 230 235 240

Ser Tyr Thr Ser Phe Tyr Cys Leu Ala Thr Ile Leu Ser Met Gln Val  
 245 250 255

Pro Phe Val Gly Phe Gln Pro Val Arg Thr Ser Glu His Met Pro Ala  
 260 265 270

Phe Gly Val Phe Gly Leu Leu Gln Ile Val Ala Leu Met His Tyr Ala  
 275 280 285

Arg Asn Arg Ile Thr Arg Gln Gln Phe Met Thr Leu Phe Val Gly Gly  
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Leu Thr Ile Leu Gly Ala Leu Ser Val Val Val Tyr Phe Ala Leu Val  
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Trp Gly Gly Tyr Val Ala Pro Phe Ser Gly Arg Phe Tyr Ser Leu Trp  
 325 330 335

Asp Thr Gly Tyr Ala Lys Ile His Ile Pro Ile Ile Ala Ser Val Ser  
 340 345 350

Glu His Gln Pro Thr Thr Trp Val Ser Phe Phe Phe Asp Leu His Ile  
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Thr Ala Ala Val Phe Pro Val Gly Leu Trp Tyr Cys Ile Lys Lys Val  
370 375 380

Asn Asp Glu Arg Val Phe Ile Ile Leu Tyr Ala Val Ser Ala Val Tyr  
385 390 395 400

Phe Ala Gly Val Met Val Arg Leu Met Leu Thr Leu Thr Pro Ala Val  
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Cys Val Leu Ala Gly Ile Gly Phe Ser Tyr Thr Phe Glu Lys Tyr Leu  
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Lys Asp Glu Glu Thr Lys Glu Arg Ser Ser Ser Gln Ser Gly Thr Thr  
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Lys Asp Glu Lys Leu Tyr Asp Lys Ala Ala Lys Asn Val Lys Ser Arg  
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Asn Ala Asn Asp Gly Asp Glu Ser Gly Val Ser Ser Asn Val Arg Thr  
465 470 475 480

Ile Ile Ser Ile Ile Leu Val Ile Phe Leu Leu Met Phe Val Val His  
485 490 495

Ala Thr Tyr Val Thr Ser Asn Ala Tyr Ser His Pro Ser Val Val Leu  
500 505 510

Gln Ser Ser Thr Asn Asn Gly Asp Arg Ile Ile Met Asp Asp Phe Arg  
515 520 525

Glu Ala Tyr His Trp Leu Arg Glu Asn Thr Ala Asp Asp Ala Arg Val  
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Met Ser Trp Trp Asp Tyr Gly Tyr Gln Ile Ala Gly Met Ala Asn Arg  
545 550 555 560

Thr Thr Leu Val Asp Asn Asn Thr Trp Asn Asn Ser His Ile Ala Leu  
565 570 575

Val Gly Lys Ala Met Ser Ser Asn Glu Ser Ala Ala Tyr Glu Ile Met  
580 585 590

Thr Glu Leu Asp Val Asp Tyr Ile Leu Val Ile Phe Gly Gly Val Ile  
595 600 605

Gly Tyr Ser Gly Asp Asp Ile Asn Lys Phe Leu Trp Met Val Arg Ile  
610 615 620

Ala Gln Gly Glu His Pro Lys Asp Ile Arg Glu Glu Asn Tyr Phe Thr  
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Ser Thr Gly Glu Tyr Ser Thr Gly Ala Gly Ala Ser Glu Thr Met Leu  
645 650 655

Asn Cys Leu Met Tyr Lys Met Ser Tyr Tyr Arg Phe Gly Glu Thr Arg  
660 665 670

Val Gly Tyr Asn Gln Ala Gly Gly Phe Asp Arg Thr Arg Gly Tyr Val  
675 680 685

Ile Gly Lys Lys Asp Ile Thr Leu Glu Tyr Ile Glu Glu Ala Tyr Thr  
690 695 700

Thr Glu Asn Trp Leu Val Arg Ile Tyr Lys Arg Lys Lys Leu Pro Asn  
705 710 715 720

Arg Pro Thr Val Lys Ser Glu Glu Ala Thr Ile Pro Ile Lys Gly Lys  
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